

IDC MarketScape

IDC MarketScape: Worldwide Public Cloud Infrastructure as a Service 2020 Vendor Assessment

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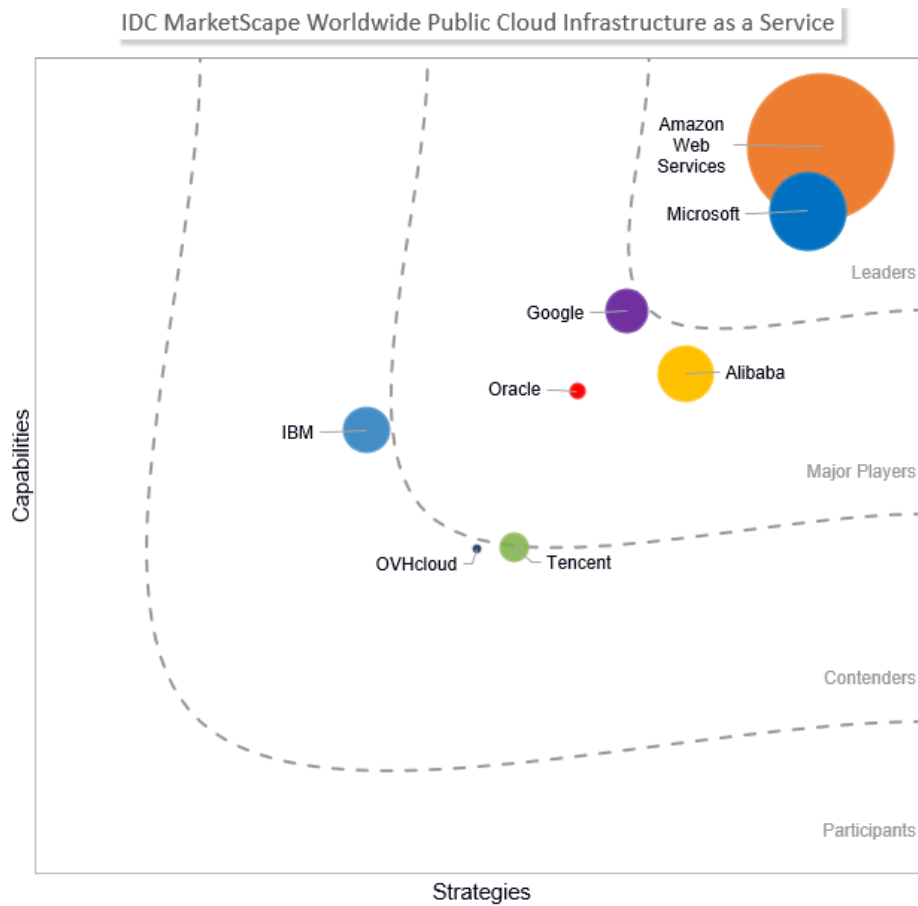
Rachel Liu

THIS IDC MARKETSCAPE EXCERPT FEATURES AMAZON WEB SERVICES

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Public Cloud Infrastructure as a Service Vendor Assessment



Source: IDC, 2020

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Public Cloud Infrastructure as a Service 2020 Vendor Assessment (Doc # US46795720). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

Public cloud infrastructure as a service (IaaS) is increasingly seen by organizations as the preferred infrastructure backbone for digital transformation (DX) initiatives and IT modernization. This is evidenced by the continued pace of growth in public cloud IaaS spending, which grew 38% in 2019 to a worldwide total of \$49 billion. IDC estimates the enterprise IT spend on public cloud IaaS to exceed spend on traditional infrastructure and private cloud infrastructure systems within the next five years. The COVID-19 disruption has renewed the focus on flexibility and cost optimization, accelerating the usage of public cloud IaaS by enterprises.

The rapid pace of public cloud IaaS adoption has resulted in a corresponding evolution of customer demands and offerings in this market. This includes increasing demand from traditional IT environments to facilitate easy adoption of public cloud IaaS, as well as a shift in customer preferences around where and how they want to adopt cloud. Among the notable changes in the market in the three years since IDC's last IDC MarketScape for public cloud IaaS are:

- Deep partnerships between public cloud IaaS providers and traditional enterprise technology providers, facilitating easier adoption of public cloud IaaS alongside the rest of their IT assets
- Growth in *cloud offerings from traditional infrastructure systems providers*, to better serve enterprise IT customers as they explore paths to modernize their IT systems
- Shift in mainstream IT customer perception around cloud usage – from "opportunistic cloud usage" to "cloud first" to "cloud everywhere" (Cloud providers have responded by expanding their service delivery footprint, with cloud service offerings spanning public cloud, customer datacenters, and edge locations. *Cloud services everywhere* is gradually becoming a reality.)
- Growing focus on the edge, in particular *edge solutions enabled by 5G deployment* and the network core modernization (Cloud providers and wireless carriers are increasing their partnerships and collaborations to capture new opportunities emerging in this space.)
- Growth of *Chinese public cloud providers and cloud spending* underscored by the growth of companies such as Alibaba and Tencent and their emergence as global players
- Ever-increasing focus on *automation and intelligence*, particularly around the areas of infrastructure operations, infrastructure governance, and security assurance
- Increasing recognition of the business value of investments around *data management and analytics* and the need for a holistic approach to manage enterprise data
- Growing use of multiple public cloud IaaS by enterprises, with the mix of cloud *provider selection often determined by best fit for workload, use case, or industry-specific requirements*
- *Independent software vendors (ISVs) actively start responding* to the growing demand from enterprises to consume the ISV's software on their preferred public cloud platform

While there is strong growth in usage, public cloud IaaS is still less than half of the infrastructure footprint at the medium-sized IT organization. Organizations are actively looking at ways to easily

adopt cloud for their needs, be it for new use cases or for modernization of existing IT assets. Cloud migration has been repeatedly reported as one of the top cloud-related priorities at organizations. The current cloud adoption momentum suggests that enterprise IT adoption of public cloud IaaS will continue to be a top driver of public cloud IaaS spending growth over the next three years. This IDC MarketScape is designed from the perspective of the enterprise IT customers, evaluating the largest global cloud providers using the IDC MarketScape methodology.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This IDC MarketScape is intended to be an evaluation of global public cloud IaaS providers. IDC's Public Cloud Services Tracker covers over 30 global and regional cloud providers with IaaS. Many of these service providers are focused on specific regions or have not reached a material revenue scale. This IDC MarketScape focuses on global public cloud IaaS providers, which have reached a critical threshold of revenue and are present in all global regions. The inclusion criteria for service providers included in this IDC MarketScape are as follows:

- The service provider offered IaaS compute and storage services for at least two years as of end of 2019.
- The service provider generated over \$100 million IaaS business in 2019.
- The service provider has active operations in all three global regions – Americas; Europe, the Middle East, and Africa; and Asia/Pacific.

IDC opted to exclude service providers with public cloud services that were either no longer a strategic business focus or were in the process of undergoing a major transformation since the evaluation would not be an accurate reflection of the service.

ADVICE FOR TECHNOLOGY BUYERS

Public cloud infrastructure services have grown to become an accepted and integral component of the enterprise IT environment. But the use of public cloud for core business operations – planning, building, and delivering products – is still far from pervasive. Broader use of public cloud infrastructure services will enable the creation of an agile, a scalable, and a resilient digital foundation for organizations. This will be a critical enabler of digital transformation and growth acceleration, as the organizations adapt to changing needs during the ongoing economic disruption and the following recovery. Further:

- Organizations must actively invest in transforming organizational skill set and process-related limitations that can act as barriers to broader cloud adoption.
- Public cloud infrastructure has evolved to deliver an increasingly broad set of services, allowing customers to create a "hypercustomized" environment in the public cloud that is highly optimized for their performance and functionality requirements. As IT organizations increase their use of cloud infrastructure services, developing clear functional and performance requirements, and aligning services usage to the most optimal ones, can have a significant impact on performance and cost of operations for the workload.
- Security and governance continue to be concerns reported by cloud customers. Early focus on cloud security, and competence building around cloud security and cloud governance, will allow organizations to easily scale cloud services usage without adding risk.

- Customers are recognizing and leveraging the value delivered through the broader ecosystem of services and tools in the public cloud ecosystem – this includes services from both the cloud provider and third-party partners. Actively exploring solutions from within the cloud ecosystem can accelerate the time to value from cloud adoption initiatives.

VENDOR SUMMARY PROFILE

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of the vendor's strengths and challenges.

Amazon Web Services

Amazon Web Services (AWS) is positioned in the Leaders category in the 2020 IDC MarketScape for worldwide public cloud infrastructure as a service.

AWS continues to retain its dominance in the public cloud IaaS market and offers customers the widest portfolio of infrastructure services in the public cloud today. As of 2019, AWS is 47% of the \$49 billion public cloud IaaS market (see *Worldwide Public Cloud Infrastructure as a Service Market Shares, 2019: Leaders Consolidate Their Positions, Seek to Differentiate with Investment in Emerging Use Cases*, IDC #US46735820, July 2020) and over three times its next nearest competitor in this market.

At the core of AWS' compute portfolio is Amazon EC2, which encompasses over 300 instance types across AWS Graviton Arm, Intel x86, and AMD x86 processor types. The instance configurations range from small general-purpose instances like t3.nano with 2 vCPUs and 0.5GiB of memory and the a1.medium with 1 Arm vCPU and 2GiB of memory to specialized high memory instances with up to 24TiB of memory, custom built for large in-memory databases like SAP HANA. A few of the recent enhancements to the portfolio to note are expansion of the delivery footprint for AWS through AWS Outposts, AWS Wavelength, and AWS Local Zones; the Amazon EC2 Inf1 instance for machine learning inference use cases, which is based on the AWS Inferentia chip; broader bare metal availability from i3 to other instance families including A1, C5, G4, and M5; and the expansion of AWS-designed Arm-based Graviton CPU instance offerings from A1 to other instance families like M6g, C6g, and R6g, offering a cost-optimized option for certain customer workloads. In addition, there has been a steady expansion of regional availability of the VMware Cloud on AWS, delivered through the partnership with VMware and currently available in 17 of the 24 global AWS regions. These are accompanied by service expansions to optimize cloud deployments and developer needs, including Amazon CodeGuru for machine learning-powered code review and Savings Plans to lower the cost of AWS Compute services.

AWS storage consists of file, block, and object storage services, with offerings optimized for both production and secondary storage use cases. Amazon EBS offers a range of price-performance configurations through multiple SSD- and HDD-based block storage offerings that can be used alongside Amazon EC2, supporting up to 64,000 IOPS for high-performance use cases and pricing as low as \$0.025 per gigabyte per month for cost-optimized use cases. Tiered storage on Amazon S3 enables standard cloud object storage from \$0.023 per gigabyte per month down to \$0.00099 per gigabyte per month for cold storage use cases. Amazon EFS and Amazon FSx provide customers access to NFS, SMB, and Lustre-based shared file systems, enabling easy deployment of Windows- and Linux-based enterprise applications as well as a parallel file system for high-performance

computing use cases. Amazon FSx offers low-cost storage starting as low as \$0.0130 per gigabyte per month, high-performance file storage access supporting multiple gigabytes per second of throughput per file system, as well as built-in tiering capability to move data to lower-cost object storage tiers for cost optimization. These are further supported by a range of data transfer services, supporting different patterns of data movement to AWS. The AWS Snowcone is the most recent extension to this capability, with a ruggedized device under 4.5lb and including 8TB of storage, supporting edge computing as well as online and batch data transfer to AWS.

AWS infrastructure services are complemented by a continually expanding ecosystem of services – including services to enable optimization and automation of AWS usage, the higher-layer needs such as databases, as well as accelerating the time to market for new capabilities like AI/ML and IoT. As of mid-2020, AWS claims support for 175 cloud services (growth of over 100 services in the past three years). These are further enhanced by a broader program to support the onboarding of customers through partners, and IDC believes the sustained leadership of AWS in this market can be attributed to two key enablers. The first is the continued pace of innovation in its service portfolio and customer enablement, reflected in the momentum of service announcements and partner programs. The second is the ability to respond to customer needs and pivot as needed, reflected in the major new offerings of the past three years such as VMware Cloud on AWS and AWS Outposts.

Strengths

AWS offers a broad portfolio of IaaS offerings and continues to expand on this portfolio to meet customer demands. This is further strengthened by a willingness to respond to customer demand, even when this requires investments in directions that are new to AWS. AWS also offers a strong partner onboarding program and marketplace, including an expanding set of capabilities to support software delivery transformation needs from ISVs. AWS continues to enjoy strong mindshare across both enterprise IT buyers and developers in the public cloud IaaS market. AWS' experience and maturity in delivering cloud services is evidenced by its ability to support availability and capacity needs of its customer base, even through the multibillion-dollar growth in its usage in recent years.

Challenges

AWS does not have as much of a presence in the enterprise on-premises environment as some of its competitors in this market. This limits the extent to which AWS can influence on-premises IT costs for enterprise IT organizations. AWS also needs to address how it is perceived as a threat by some customers, because of the broader Amazon.com business interests in other markets.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

The public cloud infrastructure as a service market is defined in detail in the sections that follow, which describes the infrastructure as a service functional market and public cloud service deployment model.

Infrastructure as a Service

IDC defines public cloud infrastructure as a service as the aggregate of compute, raw storage capacity, and the associated networking capability, delivered through a cloud deployment model.

Note that client functionality delivered as cloud services is categorized as virtual cloud client computing (including "desktop as a service" offerings, such as those from Amazon, Microsoft, and VMware). This fits within the software-as-a-service system infrastructure software market and is not part of the IaaS market.

Cloud Deployment Models

Cloud deployment models describe how a cloud IT service is built and delivered to consumers of the service. The factors that determine the cloud deployment model are:

- The physical location of the hardware infrastructure systems on which the service is running
- Whether or not the service is dedicated to one organization or shared across multiple independent organizations
- The owner of the hardware infrastructure systems on which the service is running

At the broadest level, the types of deployment models for cloud services are public and private:

- **Public cloud services** are shared among unrelated enterprises and/or consumers, open to a largely unrestricted universe of potential users, and designed for a market, not a single enterprise.

- **Private cloud services** are shared within a single enterprise or an extended enterprise, with restrictions on access and level of resource dedication, and defined/controlled by the enterprise beyond the control available in public cloud offerings.

Attributes That Define an IT Cloud Service

IDC defines cloud services through a checklist of key attributes that an offering must manifest to end users of the service (see Table 1). To qualify as a "cloud service," as defined by IDC, an offering must support *all* of the six attributes listed in Table 1. These attributes apply to all cloud services – in all public and private cloud service deployment models – although the specifics of how each attribute applies may vary slightly among these deployment models.

TABLE 1

Six Attributes of IT Cloud Services

Attribute	Remarks
Shared, standard offering	Built for massive scale, automated deployment
Delivered as an all-inclusive service	Pre-integrated and manages/updates all required resources
Elastic scaling	Dynamic, rapid, and fine-grained
Elastic pricing capability	Tied to resource consumption or number of users
Self-service	Self-service provisioning and administration options
API/published service interface	Programmable access via open/published API

Source: IDC, 2020

Under the umbrella of IT cloud services, IDC recognizes four primary market segments: infrastructure as a service (IaaS), platform as a service, software as a service – applications, and software as a service – system infrastructure software.

Refer to *IDC's Worldwide IT Cloud Services Taxonomy, 2019* (IDC #US45714519, December 2019) for comprehensive definitions of all IT cloud services market segments, including IaaS.

LEARN MORE

Related Research

- *Worldwide Public Cloud Infrastructure as a Service Forecast, 2020-2024* (IDC #US45322520, July 2020)
- *Worldwide Public Cloud Infrastructure as a Service Market Shares, 2019: Leaders Consolidate Their Positions, Seek to Differentiate with Investment in Emerging Use Cases* (IDC #US46735820, July 2020)
- *Impact of COVID-19 on Worldwide Infrastructure as a Service (IaaS) Spending, April 29, 2020* (IDC #US46277920, May 2020)
- *IDC's Forecast Scenario Assumptions for the ICT Markets, April 2020* (IDC #US46208220, April 2020)
- *IDC's Worldwide IT Cloud Services Taxonomy, 2019* (IDC #US45714519, December 2019)

Synopsis

This IDC study represents a vendor assessment of global public cloud infrastructure as a service (IaaS) providers through the IDC MarketScape model.

"The use of public cloud IaaS by enterprises has rapidly increased in the past two years, creating new demands and new expectations of services," said Deepak Mohan, research director, Cloud Infrastructure Services at IDC. "Cloud providers have been quick to respond, with partnerships, service expansions, and easier onboarding, to better enable workload onboarding and digital transformation for enterprises. The effectiveness of each provider's response, and the ability to continue addressing new demands from enterprises, is emerging as a critical determinant of success in this market."

About IDC

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